



## Treatment Patterns for Mastitis in Danish Dairy Cattle Farms

**Gussmann, Maya Katrin; Græsbøll, Kaare; Kirkeby, Carsten Thure; Nielsen, Søren Saxmose; Toft, Nils; Farre, Michael; Hisham Beshara Halasa, Tariq**

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# Treatment Patterns for Mastitis in Danish Dairy Cattle Farms

Maya Gussmann<sup>1</sup>, Kaare Græsbøll<sup>1</sup>, Carsten Kirkeby<sup>1</sup>,  
Søren Saxmose Nielsen<sup>2</sup>, Nils Toft<sup>1</sup>, Michael Farre<sup>3</sup>, Tariq Halasa<sup>1</sup>

<sup>1</sup>DTU National Veterinary Institute, <sup>2</sup>University of Copenhagen, <sup>3</sup>SEGES, Denmark

## Introduction

Regular cow level registrations in the Danish Cattle Database include registrations about e.g. milk yield, SCC and calvings, but also about diseases and treatments for individual cows. These data could potentially be a useful source of information for the development of herd-specific udder health management programs tailored to the farmer's preferences. With tailored programs farmers will possibly be more motivated to adopt a proposed management program.

## What are the driving factors for mastitis treatment on different farms?

### Data

518 Danish dairy farms with recordings for

- Treatment
- Milk yield  
→ Average milk yield
- Calvings  
→ Parity  
→ Lactation stage
- SCC
- Clinical registrations
- PCR

from 2009 to 2015.

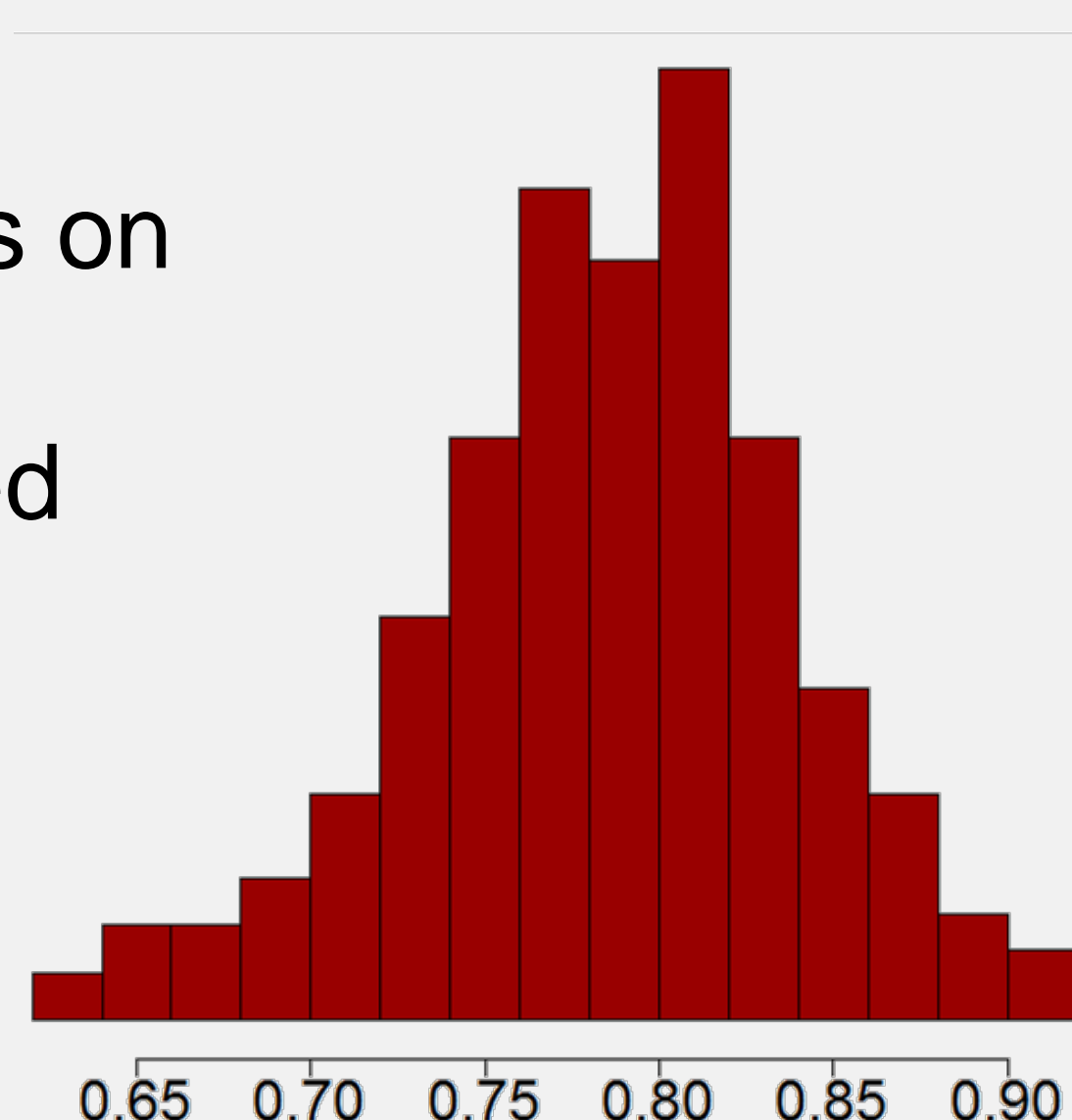
### Statistical analyses

- Farm-wise
  - Logistic regressions to predict treatment
- For 458 farms without extreme coefficients:
- AUC: prediction capability of the model
  - Principal component analysis (PCA) for 429 farms: transformation of regression coefficients to explain as much variance as possible
  - Clustering of farms

### Results

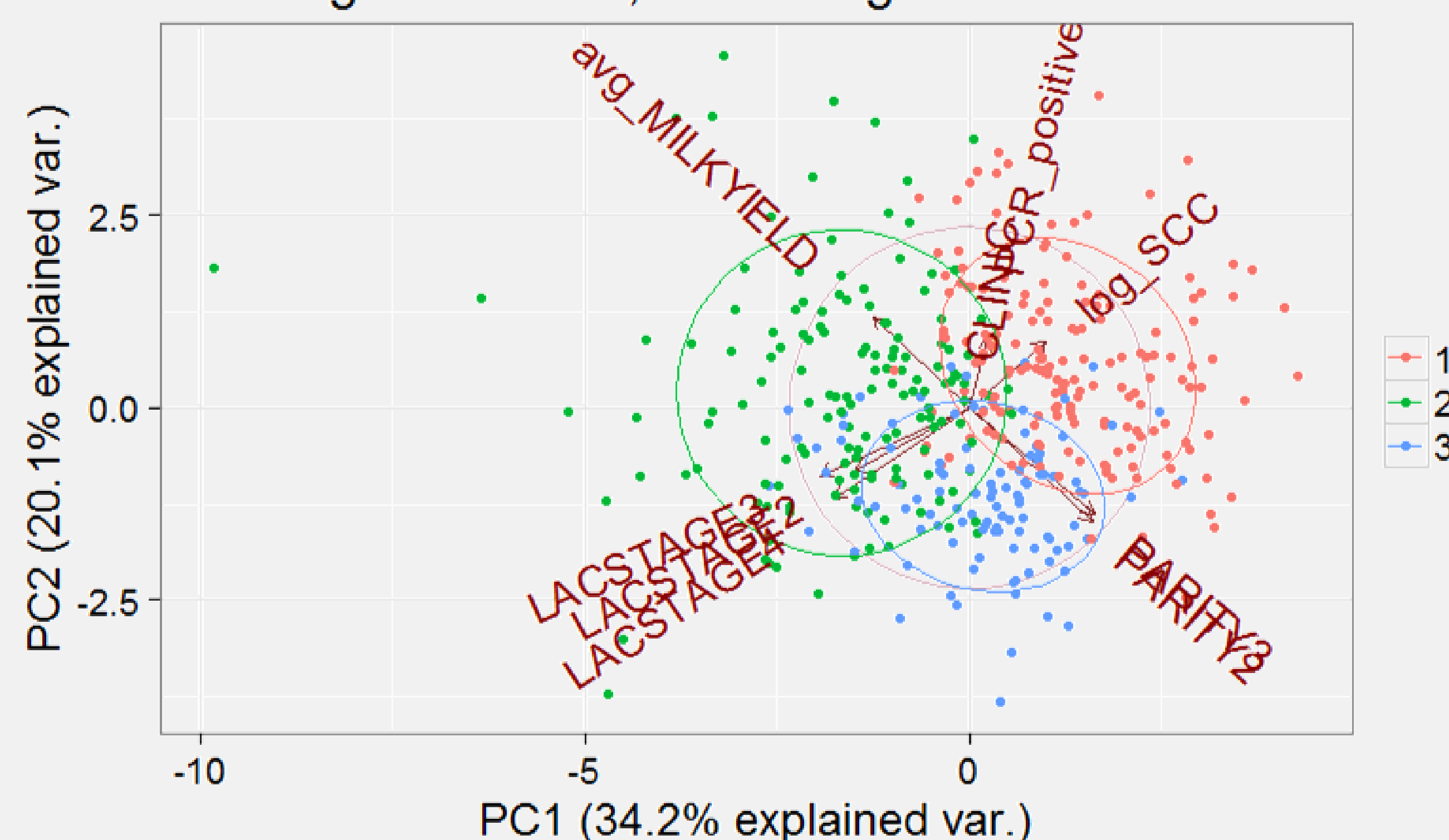
*Multivariate logistic regression* showed significance for all predictors, though not on all farms. On 77 farms all predictors were significant.

Fitting the regression models on 90% of the cows and testing on the remaining 10% yielded a mean AUC of 0.78, indicating a good predictive capability of the model (see histogram).



The first two principal components explain more than 50% of the Variance. *PCA* and *clustering* show three clusters, one around parity, one around lactation stage and average milk yield and one around clinical registrations, PCR and SCC (see Figure 1).

Figure 1. PCA, clustering with ward.D2



### Summary

The results indicate that farmers have different reasons for mastitis treatments; some focus on age, or production, while others focus on disease indicators such as positive PCR or SCC.

